# Appendix A Climate Change Literature Review Summary

This appendix reviews current literature (as of November 2011), web content, and existing summary tables provided by EPA and California Department of Water Resources (DWR) that relate to addressing climate change impacts on water resources. This search and review of available documents is summarized into the following summary table that identifies climate change documents specifically linked to regional water planning standards. The table is intended to provide guidance for regional water planners and stakeholders to address climate change at key stages within their planning process. The literature summary table is not intended to be a comprehensive survey of the vast amount of scientific literature regarding climate change; rather a targeted survey which identifies the body of literature directly applicable to the regional water planning process.

#### Organization of the Literature Search Summary Table

The six main categories of the table include:

- General Information,
- General Introduction to Climate Change and Water Resources,
- Climate Change Research,
- Climate Change Implications and Impacts,
- Resource Management Strategies (Adaptation),
- Planning Under Uncertainty, and
- Climate Change Mitigation.

These main categories generally follow the process of addressing climate change issues over the course of a water resource planning process. The summary table provides a "roadmap" indicating the specific aspect of climate change covered by each document reviewed. The literature was screened to identify the presence (or absence) of information useful for preparation of regional water plans. The type of information provided under each category is described below.

#### **General Information**

This category contains general citation information for each document. This section of the literature review includes:

- Source Title,
- Author(s),
- Journal/Agency Information, and
- Publication Date.

The literature review summary also includes the following information:

- Index Number: This is an arbitrary number assigned for bookkeeping purposes. A unique index is assigned to each source.
- DWR Reference Information: The Department of Water Resources has produced a Climate Change Clearinghouse
   (<a href="http://www.water.ca.gov/irwm/docs/drftIRWMPlanningClrhs3">http://www.water.ca.gov/irwm/docs/drftIRWMPlanningClrhs3</a> 041210.pdf) containing reference information that points to many useful documents in climate change and Water Resources Planning. Items in the Summary Table that are also contained in the clearinghouse are indicated in the "DWR Reference Information" column with a "CH"; items that are also contained in the large DWR index are indicated with the index number from the DWR list.
- Document Type: Most documents in this table are in text form; however, several PowerPoint presentations and a video have also been included.
- Geographic Scope: the tabulated literature references are categorized by location in the "Geographic Scope" column, beginning with California (denoted "CA"), followed by the Pacific Northwest ("PNW") and documents that either focus on a region of the United States outside of the PNW or contain nationwide information. Finally, the notation "NA", referring to Not Applicable, is assigned to documents addressing global-scale phenomena, local-scale phenomena external to the United States, and topics that are not region-specific (such as Adaptive Management). In addition to California, the Pacific Northwest was a selected region due to the similarities in topography and coastal environments. Furthermore, a large amount of climate change research related to water resources has been conducted in this region. Associated with the grouping by location, the table may be sorted chronologically, with the most recent documents for each location shown at the top.
- General Introduction to Climate Change and Water Resources: This category represents literature which provides general overviews or summaries of climate change. These may be useful to serve as a "primer" on climate change or to provide general overview information for presentation in a non-technical setting. A "Y" indicates that the document addresses this category.

#### **Climate Change Research**

This category identifies literature which addresses the scientific understanding of climate change as well as its trends and processes. This is an area in which there is a vast amount of prior and ongoing research, so the literature summary table is not intended to be comprehensive. Five subcategories which are intended to indicate the relevance of the research to regional water plans have been identified. These include:

- Global Climate Change Trends,
- General Overview of Climate Change Processes,
- Regional Climate Change Trends (targeting West Coast of the U.S.), Global Climate Model (GCM) modeling, Downscaling, and
- Hydrology Trends and Models.

A "Y" indicates that the document addresses each subcategory and provides useful information for a regional planner.

#### **Climate Change Implications and Impacts**

The category represents literature which is directly relevant to assessment of climate change vulnerability and impacts to various sectors applicable to a regional water plan. Ten subcategories were identified to cover the suite of water resource management sectors including:

- Flood Management,
- Groundwater,
- Habitat/Ecosystem,
- Hydropower,
- Sea Level Rise,
- Stormwater Management,
- Surface Water Supply,
- Water Quality,
- Urban Water Demand, and
- Agricultural Water Demand.

These categories reflect a combination of the Integrated Regional Water Management (IRWM) plan minimum requirements, the Statewide Priorities for the IRWM Grant Program, the DWR Proposition 84 and Proposition 1E Guidelines Project Definition, and the typical categories of climate change study. A "G" or "S" is used to designate whether each document provides General

information or Specific information. "General" indicates literature which is typically more descriptive and qualitative while "Specific" provides a higher level of detail and technical basis.

#### **Resource Management Strategies (Adaptation)**

This category represents literature relevant to the IRWM plan minimum requirements, Statewide Priorities for the IRWM Grant Program, and the DWR Proposition 84 and Proposition 1E Guideline Project Definition. Twelve subcategories are identified which generally overlap with the Implications and Impact category above but also include Conservation, Reuse, and Recycling. A "G" or "S" is used to designate whether each document provides General information or Specific information. "General" indicates literature which is typically more descriptive and qualitative while "Specific" provides a higher level of detail and technical basis.

#### **Planning Under Uncertainty**

This category represents a departure from prior regional water planning processes and represents one of the unique features of the Handbook. The DWR IRWM Plan Guidelines require that technical analysis consider uncertainty and how the uncertainty is applied to the planning horizon. Three subcategories are identified: Decision Support/Alternative Evaluation, Analysis of Uncertainty, and Adaptive Management. A "G" or "S" is used to designate whether each document provides General information or Specific information. "General" indicates literature which is typically more descriptive and qualitative while "Specific" provides a higher level of detail and technical basis.

#### **Climate Change Mitigation**

This category represents literature which addresses greenhouse gas emissions inventories and emission reduction strategies. This is an area where there is a vast amount of prior and ongoing research and the literature summary table is not intended to be comprehensive. A "Y" indicates that the document addresses mitigation.

The "G" and "S" classifications allow a user to filter the abundant reference information available in these subcategories between general overviews of the subject material—denoted as "G" resources, or specific case studies, examples, or guidelines on the approach, implementation and monitoring of climate change elements within the planning process—denoted as "S" resources. For example, DWR's "Managing an Uncertain Future" is assigned a "G" in the table for all Implications and Impacts and Adaptation categories. This is because the document provides an introductory overview of general state-wide trends and management strategies. However, AWWA's "Climate Change and Water: International Perspectives on Mitigation and Adaptation" is assigned several "S" categorizations because it contains many case studies where specific management strategies were evaluated.

The other tabs included in the Excel file for this table include general notes, a list of acronyms, and a companion table containing web links where files are publicly available. An effort was

made to concentrate on publicly available literature, but in some instances journal publications and other private documents containing valuable information were included.

#### How to Use the Literature Search Summary Table

This literature review table is intended to be used in conjunction with the Handbook to allow regional water planners and stakeholders to identify the climate change references most useful to them as they incorporate climate change into the regional water planning process. The literature summary table is provided in electronic format to allow a user search and sort capabilities. The most effective method is to use the **Filter** option and the **Sort** option, both found in the **Data** menu of Microsoft Excel. These options allow a user to produce a short list of documents that have both general and specific information related to the planning category, or group of select planning categories, and will allow limiting the list further to those documents showing only specific information. These data filtering options were applied after the initial round of literature review to determine where information gaps existed and to focus on filling these gaps during subsequent rounds.

# **General Findings of the Literature Search**

During development of the literature review, it became apparent that a significant amount of climate change literature related to water resources has been produced over the last five years. To address this, an additional table is included to show references that have yet to be reviewed and determined useful for the regional water planners. This table also includes some website links for additional information and documentation related to climate change. Other key findings from the literature review and tabulation were as follows:

- There is a significant amount of general climate change information, but much less of the specific/procedural guidelines necessary for a regional water planner to follow through a regional water planning process.
- There is an information gap on specific strategies for water agencies or utilities to adapt to climate change impacts.
- Limited information exists in the integration of strategies and how they might impact other sectors and/or other strategies.
- A lack of information related to climate change implications on potential vulnerabilities and impacts on Groundwater and Water Quality.
- Much of the available literature presents general information, but there is relatively little which presents specific tools and guidelines on how to apply impacts to sectors for regional water planners and the regional water planning project prioritization and evaluation process.
- There is an abundant amount of documentation on mitigation, but the documents primarily describe this category in general terms as it relates to preventive measures (emissions

reduction). Less information is available on how a participant can use and integrate mitigation to offset an impact associated with a specific water resource strategy.

- There is very limited information and guidance on the use of decision-support tools as used by regional water planners in the context of evaluating strategies to address climate change impacts.
- There are many examples of planning and decision support in preparing for climate change, but there is very little material describing ways in which climate change planning can be incorporated into a larger planning process such as a regional water plan, which has a separate structure for project prioritization and evaluation. The limited number of regional water plans that take climate change into account include climate change in the project weighting process or include climate change as a specific objective. These regional water plans are included in the Literature Summary.

	General II	nformation					Climate (	Change	Resea	rch		C	limate C	Change	Impli	cations and	Impact	S				Resou	rce Ma	nager	ment Strat	tegies (	Adapta	tion)			Plannii	ng for	Uncert	ainty
ndex Source Title	Author(s)	ournal Title/Agency(ies) Prepared for Institution(s)/ Agency(ies) Prepared by)	Date	Document Type	Geographic Scope	General Introduction To Climate Change and Water Resources	Global Climate Change Trends General Overview of CC Processes	Regional CC Trends	GCM Modeling and Downscaling	Hydrology Trends and Models	Flood Management	Groundwater	Habitats, Ecosystems and Biodiversity	Hydropower Generation	Sea Level Rise	Stormwater Management Surface Water Supply	Water Quality	Urban Water Demand	Agricultural Water Demand	Conservation	Flood Management	Groundwater	and Biodiversity	Hydropower Generation	Sea Level Rise Reuse and Recycling	Stormwater Management	Surface Water Supply	Water Quality	Agricultural Water Demand	Urban Water Demand	Decision Support Alternatives Evaluation	Analysis of Uncertainty	Adaptive Management	CC Mitigation
Sierra Climate Change Toolkit		Sierra Nevada Alliance	2007	text (pdf)	CA		YY	Υ		Y	_					0, 0,				s	s		s	G	3, <u>L</u>		S						s	Υ
California Water Plan Update 2005 - Climate Change and California Water Resources: A Survey and Summary of the Literature	Michael Kiparsky Peter Gleick	CEC (Pacific Institute)	Jul-03	text (pdf)	CA			Y	Y	Y	G	G	G	G	G	G	G		G	G					G		G		G	G			G	
Progress on Incorporating Climate  3 Change into Management of California's Water Resources	Anderson et al.	Climatic Change	2008	text (pdf)	CA			Y	Y	Y	S					S	S										S					S		
Using Future Climate Projections to 4 Support Water Resources Decision	Chung et al.	CA CCC	Jun-09	text (pdf)	CA			Y	Y	Y	G				S	S			G															
Making in California  DWR Presentation to the Regional Advisory Committee for the San Diego Integrated Regional Water Management Plan	John T. Andrew	DWR	Oct-09	ppt (pdf)	CA	Y										G	G																	Y
6 Framework for the Implementation of Water Management Planning	California Water Institute - Fresno State	California Partnership for the San Joaquin Valley	Mar-09	text (pdf)	CA																						S							
The Future is Now: An Update on Climate Change Science Impacts and the Response Options for California	Moser et al.	CEC PIER	Sep-08	text (pdf)	CA	Y		Y					G																					
The State of Climate Science for 8 Water Resources Operations, Planning and Management	Michael Anderson	DWR	Jan-09	text (pdf)	CA		Y		Y																									
9 Water Management Adaptation with Climate Change	Medellin-Azuara et al.	CA CCC	Aug-09	text (pdf)	CA				Y	Y				S		S		S	S					S			S				S			
Adapting California's Water  Management to Climate Change	Elen Hanak Jay Lund	PPIC	Nov-08	text (pdf)	CA						G				G	G	G				G	G		G			S	G	G	G		G	G	Υ
Managing Water in the West: Literature Synthesis on Climate Change Implications for Reclamation's Water Resources	Spears et al.	BOR	Sep-09	text (pdf)	CA			Y	Y	Y	G	G	G	G	G	G	G	G																
The Impact of Climate Change on California's Ecosystem Services	Shaw et al.	CA CCC	Mar-09	text (pdf)	CA				Y	Y			S																					
Adopted Text of the CEQA Guidelines Amendments	-	CEQA	Dec-09	text (pdf)	CA																													Υ
Climate Change Scoping Plan: A Framework for Change	-	California Air Resources Board	Dec-08	text (pdf)	CA																													Υ
15 Preparing California for a Changing Climate	Louise Bedsworth Ellen Hanak	Public Policy Institute of CA	NA	text (pdf)	CA			Y																										
Planning for Reliable Water Supply in the Face of Climate Change and Uncertainty	Dan Rodrigo Greg Heiertz	AWRA Specialty Conference on Adaptive Management (CDM)	Jun-09	text (pdf)	CA					Y						S		S														S	S	
Our Changing Climate: Assessing the Risk to California	Guido Franco Daniel C. Cayan Amy Linde Luers	CA CCC	Jul-06	text (pdf)	CA					Y			G	G	G	G																		
Climate Change and California Water Management: First Western Forum on Energy and Water Sustainability	John T. Andrew	DWR	Mar-07	ppt (pdf)	CA	Y		Y							G	S																		
Managing an Uncertain Future: 19 Climate Change Adaptation Strategies for California's Water	-	DWR	Oct-08	text (pdf)	CA			Y			G	G	G	G	G	G	G			G	G	G	G		G G		G							
Progress on Incorporating Climate Change into Management of California's Water Resources: July 2006 Technical Memorandum Report	-	DWR	Jul-06	text (pdf)	CA		Y Y	Y	Y	Y	S	G			S	S		S	s												G	G		Υ
21 2009 California Climate Adaptation Strategy	-	California Natural Resources Agency (CNRA)	2009	text (pdf)	CA		Y	Υ	Y		S	G	S	G	s	G S	G	S	S	G	G	G	G	G	G G	G	G		s	G			s	Υ
A Report on Sea Level Rise Preparedness	Herberger et al.	California State Lands Commission CA CCC	May-09	text (pdf)	CA								S		S								S		S						S	S		

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23 Incorporating Climate Change into Water Supply Planning Models	Timothy Cox Enrique Loezcalva William Davis	AWRA Specialty Conference on Adaptive Management (CDM)	Jun-09	text (pdf)	CA					Y						S												S						S
24 CEQA and Climate Change CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act	-	Governor's Office of Planning and Research	Jan-08 Jun-08	text (pdf)																														Y
(CEQA) Review  Vulnerability in the Water Sector: Drought and Climate Change	David Behar	San Fracnsico Public Utility Commission WUCA	Apr-10	ppt (pdf)	CA	Y										G												G						
27 California Climate Risk and Response	Fredrich Kahrl David Roland-Holst	UC Berkeley Department of Agricultural and Resource Economics	Nov-08	text (pdf)	CA				Y	Y						S						G		G				G						
28 DRAFT Biennial Climate Action Team Report	-	CAT	Mar-09	text (pdf)	CA			Y	Y	Y	G		G	S	S	S							G		G			G						Y
Climate Change in Colorado: A 29 Synthesis to Support Water Resources Management and Adaptation	Andrea J. Ray Joseph J. Barsugli Kristen B. Averyt	Colorado Conservation Board	2008	text (pdf)	US		Y	Υ	Y	Y																								
The Copenhagen Diagnosis: Updating the World on the Latest Climate Science	-	UNSW	2009	text (pdf)	NA		Y Y																											
Best Practice Approaches for Characterizing, Communicating, and Incorporating Scientific Uncertainty in Climate Decision Making: Synthesis and Assessment Product 5.2	-	US Global Change Research Program, Climate Change Science Program	Jan-09	text (pdf)	NA				Y	Υ																						S	S	S
32 Climate Change 2007 Synthesis Report: Summary for Policymakers	-	IPCC	2007	text (pdf)	NA		YY																											
33 Climate Change and Water: IPCC Technical Paper VI	-	IPCC	Jun-08	text (pdf)	NA		Y		Y	Y	S		S	S	S	s s	S	S	S	G	G		G	G	G		G	G		G	G			Y
Climate Change and Water:  34 International Perspectives on Mitigation and Adaptation	-	AWWA IWA Publishing	2010	text (pdf)	NA		Y			Y	S	S	G	G	S	S G	S	S	S	S	S	S		G	S		S	S		S	S	S	S	S Y
35 California's Water-Energy Relationship	Gary Klein	CEC	Nov-05	text (pdf)	NA									S					G	G				G										Y
Refining Estimates of Water-Related Energy Use in California	-	CEC PIER (Navigant Consulting)	Dec-06	text (pdf)	NA															G														Υ
Methodology for Analysis of the Energy Intensity of California's Water Systems, and an Assessment of Multiple Potential Benefits through Integrated Water-Energy Efficiency Measures	-	University of California Santa Barbara	Jan-00	text (pdf)	NA															S						G								Y
Flood Protection in the Netherlands: Framing Long-Term Challenges and Options for a Climate-Resilient Delta	Ligtvoet et al.	Netherlands Environmental Assessment Agency	Dec-09	text (pdf)	NA						G				S						S				S									
39 Before the Deluge: Coping with Floods in a Changing Climate	Patrick McCully	International Rivers Network	May-07	text (pdf)	NA						S										S													
Setting the Record Straight: 40 Responses to Common Challenges to Climate Science	Doppelt et al.	University of Oregon Climate Leadership Initiative University of Washington Climate Impacts Group	2009	text (pdf)	NA		Y																											
Climate Change 101: Understanding 41 and Responding to Global Climate Change	-	PEW Center on Climate Change	Jan-09	text (pdf)	NA	Υ	Y Y																											G

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ndex source Title	Author(s)	ournal Title/Agency(ies) Prepared for Institution(s)/ Agency(ies) Prepared by)	Date	Jocument Type	Geographic Scope	General Introduction To Climate Change and Water Resources	Global Climate Change Trends	General Overview of CC Processes	Regional CC Trends	GCM Modeling and Downscaling	4ydrology Trends and Models	ilood Management	Groundwater Habitats, Ecosystems and Rindiversity	and blodiversity Aydropower Generation	sea Level Rise	stormwater Management	iurface Water Supply Mater Ouality	Irhan Water Demand	Agricultural Water Demand	Conservation	ilood Management	Groundwater	Habitats, Ecosystems and Biodiversity	4ydropower Generation	ea Level Rise	Reuse and Recycling	stormwater Management	surface Water Supply	Nater Quality	Agricultural Water Demand	Jrban Water Demand	Decision Support Alternatives Evaluation	Analysis of Uncertainty	Adaptive Management	CC Mitigation
42 Identifying Adaptation Option	UK Climate Impacts Programme	UK Climate Impacts Programme	2006	text (pdf)	NA				<u> </u>					, <u> </u>	<i>S</i>	- σ <sub>1</sub>	<i>o</i> , <i>&gt;</i>						_ 0		<u> </u>		OS	o,				S	S	S	
Climate Adaptation: Risk, Uncertainty, and Decision Mak	UK Climate Impacts	UK Climate Impacts Programme	2003	text (pdf)	NA																											S	S	S	
44 Cities Preparing for Climate Cha	Eva Ligeti	The Clean Air Partnership	2007	text (pdf)	NA		Υ		Υ			G	G		G	G	G	G	G G	G	G		G		G	G	G	G			G	G	G	S	Υ
Enhancing Reliability Through 45 Adaptive Management Strategie Water Utility Perspective	s: A Alison Adams	AWRA Specialty Conference on Adaptive Management	Jun-09	text (pdf)	NA												S					S						S						S	
A Framework for Incorporatir 46 Streamflow Forecasts into Reser Management		AWRA Specialty Conference on Adaptive Management	Jun-09	text (pdf)	NA												S											S				S		S	
47 Climate Change and Water Reson Management: A Federal Perspec		USGS	2009	text (pdf)	US		Y	Υ			Υ	s	G		G		G G		G									G		G	G		G	G	
48 National Water Program Strate Response to Climate Change		EPA	Sep-08	text (pdf)	US		Υ	Y							G		G			G	G		G				G								Υ
Options for Improving Climat 49 Modeling to Assist Water Utili Planning for Climate Change	Barsugli et al.	Water Utility Climate Alliance (WUCA) (Stratus Consulting) (University of Colorado at Boulder) (Iowa State University Climate Science Initiative)		text (pdf)	US					Y	Y																								
50 Global Climate Change Impacts in United States	the Karl et al.	US Global Change Research Program	June-09		US		Y	Υ	Υ		Υ	G	S		G		G G																		
51 Ecological Impacts of Climate Ch	nge -	The National Academies	2009	text (pdf)	US	Y	Y	Υ					S																						
52 Implications of Climate Change Urban Water Utilities	John E. Cromwell Joel B. Smith Robert S. Raucher	Association of Metropolitan Water Agencies (AMWA) (Stratus Consulting)	2007	text (pdf)	US	Y	Y	Y		Y	Υ	G	G		G	G	G G	G	G G													G	G		Y
53 Climate Change and Water Resou A Primer for Municipal Provide		AWWARF UCAR	2006	text (pdf)	US		Y	Y		Y	Υ	G	S		S	G	s s	G	G G	S	S						S	S	S		S	G	G	S	
Implications of Climate Change 54 Adaptation by Wastewater ar Stormwater Agencies		WERF (Stratus Consulting) (MWH Global)	Dec-09	text (pdf)	US		Y	Y		Y	Υ	G			G		G															S	G	S	
Decision Support Planning Meth 55 Incorporating Climate Chang Uncertainties into Water Plann	Means et al.	Water Utility Climate Alliance (WUCA) (Malcolm Pirnie)	Jan-10	text (pdf)	US																											S	S	S	
56 Climate Literacy	-	US Global Change Research Program, Climate Change Science Program	Mar-09	text (pdf)	US	Y		Y																											
Thresholds of Climate Change 57 Ecosystems: Final Report, Synth and Assessment Product 4.2	rsis -	US Global Change Research Program, Climate Change Science Program	Jan-09	text (pdf)	US								S										G											S	
Climate Change Effects on Strean 58 River Biological Indicators: A Preliminary Analysis		EPA	Mar-08	text (pdf)	US		Y		Υ		Υ		S																						
A Framework for Categorizing 1 Relative Vulnerability of Threate and Endangered Species to Clim Change (DRAFT)	ned Hector Galbraith	US EPA Global Change Research Program National Center for Environmental Assessment	Feb-09	text (pdf)	US								S																						
60 Synthesis of Adaptation Options Coastal Areas	-	US EPA Climate Ready Estuaries	Jan-09	text (pdf)	US							G	G		G						G		G		G										
Preliminary Review of Adaptati 61 Options for Climate Sensitive Ecosystems and Resources		US Climate Change Science Program	2008	text (pdf)	US		Y	Υ	Υ			G	S		G	G	G G						S									S	S	S	Υ

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Index	Source Title	Author(s)	Journal Title/Agency(ies) Prepared for Institution(s)/ Agency(ies) Prepared by)	Date	Document Type	Geographic Scope	General miroduction 10 Climate Change and Water Resources	Global Climate Change Trends	General Overview of CC Processes	Regional CC Trends	GCM Modeling and Downscaling	Hydrology Trends and Models	Flood Management	Groundwater	Habitats, Ecosystems and Biodiversity	Hydropower Generation	Sea Level Rise	Stormwater Management	Surface Water Supply	Water Quality	Urban Water Demand	Agricultural Water Demand	Conservation	Flood Management	Groundwater	Habitats, Ecosystems and Biodiversity	Hydropower Generation	Sea Level Rise	Reuse and Recycling	Stormwater Management	Surface Water Supply	Water Quality	Agricultural Water Demand	Urban Water Demand	Decision Support Alternatives Evaluation	Analysis of Uncertainty	Adaptive Management	CC Mitigation
62	The Effects of Climate Change on Agriculture, Land Resources, Water Resources, and Biodiversity in the United States: Final Report, Synthesis and Assessment Product 4.3	Peter Backlund Anthony Janetos David Schimel	US Climate Change Science Program	May-08	text (pdf)	US		Y	Υ			Υ		G	S		G		S	G																		
63	Adapting to climate change in United States National Forests	Blate et al.	Unasylva	2009	text (pdf)	US																				S												
64	Final Report from the Technical Committee on Climate Change	R. N. Palmer	Department of Civil and Environmental Engineering, University of Washington The Climate Impacts Group	2006	ppt (pdf)	PNW					Y	Y		G					S																			
65	2009 Regional Supply Outlook	Central Puget Sound Water Supply Forum	Central Puget Sound Water Supply Forum	2009	text (pdf)	PNW			Υ	Y	Υ								s		s		s		s				S		S			s	S	S	S	
66	Everett Comprehensive Water Plan 2006; Appendix 6-2 - Climate Change Technical Memorandum Evaluation of Climate Change on Everett's Yield	Amie Hansen	(CDM)  City of Everett Public  Works Department  (HDR)	2006	text (pdf)	PNW					Y	Y				S			S								S				S				S	S	S	
67	Preparing for Climate Change: A Guide for Local, Regional and State Governments	Climate Impacts Group (UW), King County, Wa	Center for Science in the Earth System (Climate Impacts Group), Joint Institute for the Study of the Atmosphere and Ocean, University of Washington King County ICLEI - Local Governments for Sustainability	2007	text (pdf)	PNW		Y	Y	Y			G	G	G	G	S	S	S	G	G	G	G	G	G	G	G	G	G	G	G		G	G	S	S	S	Y
68	SPU 2007 Water System Plan - Part I, Chapter 2: Water Resources	-	Seattle Public Utilities	2007	text (pdf)	PNW				Y	Υ								s		S		S	G	S	G			S		S			S	G	S	S	
69	Climate Impacts on Washington's Hydropower, Water Supply, Forests, Fish and Agriculture	Casola et al.	Center for Science in the Earth System (Climate Impacts Group), Joint Institute for the Study of the Atmosphere and Ocean, University of Washington Climate Impacts Group	2005	text (pdf)	PNW		Y	Y	Y			S		S	S		S	S		S	S																
70	Climate Change Building Blocks	Palmer et al.	Climate Change Technical Subcommittee of the Regional Water Supply Planning Process, Seattle, WA.	2006	text (pdf)	PNW		Y	Y	Y					G		G		G																			
71	Technical Memorandum #1: Literature Review of Research Incorporating Climate Change into Water Resources Planning	D. Alexander R.N. Palmer A. Polebitski	Climate Change Technical Subcommittee of the Regional Water Supply Planning Process, Seattle, WA.	2007	text (pdf)	PNW					Y	Y																										
72	Technical Memorandum #2: Methodology for Downscaling Meteorological Data for Evaluating Climate Change	A. Polebitski M.W. Wiley R.N. Palmer	Climate Change Technical Subcommittee of the Regional Water Supply Planning Process, Seattle, WA.	2007	text (pdf)	PNW					Υ																											
73	Technical Memorandum #3: Online Database Functionality and Design for Climate Impacted Data	C. O'Neill R.N. Palmer	Climate Change Technical Subcommittee of the Regional Water Supply Planning Process, Seattle, WA.	2007	text (pdf)	PNW					Υ	Υ																										

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Index	Source Title	Author(s)	Journal Title/Agency(ies) Prepared for Institution(s)/ Agency(ies) Prepared by)	Date	Document Type	Geographic Scope	General Introduction 10 Climate Change and Water Resources	Global Climate Change Trends	General Overview of CC Processes	Regional CC Trends	GCM Modeling and Downscaling	Hydrology Trends and Models	Flood Management	Groundwater Habitats, Ecosystems	and Biodiversity Hydropower Generation	Sea Level Rise	Stormwater Management	Surface Water Supply	Water Quality	Urban Water Demand	Agricultulal Water Delilaria	Conservation	riood Management	Groundwater Habitats, Ecosystems	and Biodiversity Hydropower Generation	Sea Level Rise	Reuse and Recycling	Stormwater Management	Surface Water Supply	Water Quality	Agricultural Water Demand	Urban Water Demand	Decision Support Alternatives Evaluation	Analysis of Uncertainty	Adaptive Management CC Mitigation
74 Im	Technical Memorandum #4: Approach for Developing Climate pacted Meteorological Data and its Quality Assurance/Quality Control	Polebitski A., L. Traynham R.N. Palmer	Climate Change Technical Subcommittee of the Regional Water Supply Planning Process, Seattle, WA.	2007	text (pdf)	PNW				Y	Υ	Y																							
/5	Technical Memorandum #5: Approach for Developing Climate mpacted Streamflow Data and its Quality Assurance/Quality Control	Polebitski A., L. Traynham R.N. Palmer	Climate Change Technical Subcommittee of the Regional Water Supply Planning Process, Seattle, WA.	2007	text (pdf)	PNW				Y		Y																							
76 <sup>Fr</sup>	Technical Memorandum #6: amework for Incorporating Climate Change into Water Resources Planning	R. N. Palmer	Climate Change Technical Subcommittee of the Regional Water Supply Planning Process, Seattle, WA.	2007	text (pdf)	PNW		Y	Y		Y	Y (	G	G G	ā		G	G		G															
	echnical Memorandum #8: Impacts f Climate Change on Groundwater Resources- A Literature Review	D. Alexander R.N. Palmer	Climate Change Technical Subcommittee of the Regional Water Supply Planning Process, Seattle, WA.	2007	text (pdf)	PNW								S																					
78 CI	imate Change Impacts on Columbia River Basin Fish and Wildlife	Independent Science Advisory Board	Independent Science Advisory Board	2007	text (pdf)	PNW		Y	Υ	Υ		(	G	S	5			G						G											G Y
	HB 1303 Interim Report: A Comprehensive Assessment of the Impacts of Climate Change on the State of Washington	Climate Impacts Group	Climate Impacts Group	2007	text (pdf)	PNW		Υ		Y		(	G	G	6	G	G			,	i														G Y
80	Adapting to climate change on Olympic National Forest	D. L. Peterson J.S. Littell O'Halloran	Mountain Views	2008	text (pdf)	PNW																		G											G Y
81 S	ea Level Rise in the Coastal Waters of Washington State	Mote et al.	University of Washington Climate impacts Group Washington Department of Ecology	2008	text (pdf)	PNW				Y																									
82	The Washington Climate Change Impacts Assessment	Climate Impacts Group	Climate Impacts Group	2009	text (pdf)	PNW		Y		Υ	Υ	Υ !	S	S	s s	S	S	S		S :	5	G (	G .	G G	G	G		G	G		G	G			G
83	California Water Plan Update 2009 Volume I: Strategic Plan	-	DWR	2009	text (pdf)	CA				Υ			s	G G	6 G	G		S	G	S	5	s :	S	s s			S	S	S	S	G	G		s	S Y
	rategies for Managing the Effects of Climate Change on Wildlife and Ecosystems	-	The H. John Heinz III Center For Science, Economics and the Environment	no date!!	text (pdf)	NA																		S									S		S
85	Understanding and Responding to Climate Change: Highlights of National Academies Reports 2008 Edition	-	National Academy of Science National Academy of Engineering Institute of Medicine National Research Council	2008	text (pdf)	US	Y	Y	Υ																										
86 TI	ne Impacts of Sea-Level Rise on the California Coast	Herberger et al.	CA CCC	May-09	text (pdf)	CA					Y	(	G	G S	5	S						(	G .	G		S								S	
87	Climate Change in California: Scenarios for Adaptation	Amy Luers Michael D. Mastrandrea	PPIC	Nov-08	text (pdf)	CA				Υ	Y					G																		G	
	California Water Plan Update 2009 Volume II: Resource Management Strategies A Climate of Change	-	DWR DWR	2009 NA	text (pdf)		Y		Y	Y	Y	Y	G	G	e	S		S				s :		S S		S		S	S	S	S	S			
	The Potential Consequences of Climate Variability and Change for	Wilkinson et al.	California Regional Assessment Group	2002	text (pdf)			Υ	Y				G	G S					G					G					G				G		G Y
91	California  Report of the World Climate Conference-3: Better Climate Information for a Better Future	-	World Meteorological Organization (WMO) and United Nations Educational, Scientific and Cultural Organization (UNESCO)	Sen-09	text (pdf)	NA																													

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Index Source Title	Author(s)	Journal Title/Agency(ies) Prepared for Institution(s)/ Agency(ies) Prepared by)	Date	Document Type	Geographic Scope	General Introduction To Climate Change and Water Resources	Global Climate Change Trends General Overview of CC Processes	Regional CC Trends	GCM Modeling and Downscaling	Hydrology Trends and Models	Flood Management	Groundwater	nabitats, Ecosystems and Biodiversity	Hydropower Generation Sea Level Rise	Stormwater Management	Surface Water Supply	Water Quality	Urban Water Demand	Agricultural Water Demand	Conservation	ricod ivianagement	Habitats, Ecosystems	Hydropower Generation	Sea Level Rise	Reuse and Recycling	Stormwater Management	Surface Water Supply	Water Quality	Agricultural Water Demand	Urban Water Demand	Decision Support Alternatives Evaluation	Analysis of Uncertainty	Adaptive Management	CC Mitigation
92 Climate Change and Water Management	-	California Environmental Dialoque	Sep-09	text (pdf)	CA															G	(	i			G	G								Y
93 Bird Species and Climate Change	Janice Wormworth	WWF-Australia	2006	text (pdf)	NA																													
Observed Changes in the Sierra  94 Nevada Snowpack: Potential Causes and Concerns	Karl Mallon Sarah Kapnick Alex Hall	CA CCC	Aug-09	text (pdf)						Y																								
95 An Enhanced California Climate Monitoring System	Kelly T. Redmond David B. Simeral Greg D. McCurdy	CEC PIER	Aug-09	text (pdf)	CA			Y																										
Preparing for the Impacts of Climate  Change in California: Opportunities  and Constraints for Adaptation	Amy Lynd Luers Susanne C. Moser	CA CCC	Mar-06	text (pdf)	CA																										S		G	
97 Climate Scenarios for California	Cayan et al.	CA CCC	Mar-06	text (pdf)				Y	Y	Υ																								
98 Scenarios of Climate Change in California	Cayan et al.	CA CCC	Feb-06	text (pdf)	CA				Y	Υ			:	S S		S																		
In Hot Water: Water Management 99 Strategies to Weather the Effects of Global Warming	Nelson et al.	NRDC	Jul-07	text (pdf)	us		Y Y	Y		Y	G		G (	G G		G	G	s	G	S	G (	G G				G	S	G	G	G			G	Υ
Climate Change Scenarios and Sea 100 Level Rise Estimates for the CA 2008 Climate Change Scenarios Assessment	Cayan et al.	CA CCC	Mar-09	text (pdf)	CA			Υ	Y	Y				S																				
101 Planning for Climate Change in the	Rebecca Carter	Lincoln Institute of Land	2010	text (pdf)	US			Y																										
West  102 California Water Myths	Susan Culp Hanak et al.	Policy PPIC	Dec-09	text (pdf)	CA	Υ																												
Why Climate Change Makes Riparian Restoration More Important than Ever: Recommendations for Practice and Research	Seavy et al.	Ecological Restoration	Sep-09	text (pdf)	NA																	S												
Bay Delta Conservation Plan Chapter 104 3: Working Draft Conservation Strategy	-	BDCP	Aug-09	text (pdf)	CA															S		S		S			S	S					S	
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Surface Temperature Reconstructions for the Last 2,000 Years	-	National Academy of Sciences Global Public Policy	2006	text (pdf)	NA																													
Water World: Why the Global Climate Challenge is a Global Water Challenge	Stoddart et al.	Network on Water Management	Dec-09	text (pdf)	NA	Y							G (	G									G				G							
108 Incorporating Climate Change in Water Planning  Connecting Biodiversity and Climate	Freas et al.	Journal of the American Water Works Association	Jun-08	text (pdf)	US																										S	S		
Change Mitigation and Adaptation:  109 Report of the Second Ad Hoc Technical Expert Group on Biodiversity and Climate Change	Secretariat of the Convention on Biological Diversity	Convention on Biological Diversity UNEP	2009	text (pdf)	NA								s									S												Y
Potential Inundation due to Rising Sea Levels in the San Francisco Bay Region	Noah Knowles	CA CCC USGS	Mar-09	text (pdf)	CA									S																				
Taking the Heat: Bay Area Ecosystems in the Age of Climate Change  Institutional Adaptation of Water	Glen martin	Bay Nature	Apr-10	text (pdf)	CA								S	S																				Y
112 Resource Infrastructures to Climate Change in Eastern Ontario	P. Crabbe M. Robin	Climatic Change (University of Ottowa) Hydrological Processes	2006	text (pdf)	NA							S					S									G					S		S	
113 Inverse Flood Risk Modeling Under Changing Climatic Conditions 114 Forecasting Water Demand	Juraj M. Cunderlik Slobodan P. Simonovic William Davis	(University of Western Ontario)	2007	text (pdf)					Y	Y	S							S		S										S				
114 Forecasting Water Demand	vviiiiaiii Davis	CDIVI	2009	ppt (pul)	INA													3		J										3				

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115	Qualitative Assessment of Municipal Water Resource Management Strategies Under Climate Impacts: The Case of the Northern Cape, South Africa	Pierre Mukheibir	Water SA (University of Cape Town)	2007	text (pdf)	NA							G																		S			
116	Water Supply Risk on the Colorado River: Can Management Mitigate?	Rajagopalan et al	Water Resources Research (University of Colorado at Boulder, NOAA, BOR, AMEC, Inc)		text (pdf)	US			Y	Y	Y					S											S				S	S		
117	National Security and the Threat of Climate Change	-	CNA Corporation	2007	text (pdf)	NA		Υ				G		G	G	G																	.	
118	Risk-Based Climate-Change Impact Assessment for the Water Industry	O. M. Thorne R. A. Fenner	Water Science and Technology (Cambridge University)	2009	text (pdf)	NA				Y	Y					S	S																	
119	Identification of Major Sources of Uncertainty in Current IWRM Practice. Illustrated for the Rhine Basin	van der Keur et al	Water Resources Management (Geological Survey of Denmark and Greenland, University of Osnabrück, Wageningen University, Rijkswaterstaat Centre for Water Management)	2008	text (pdf)	NA																									S	S	S	
120	Multi-Objective Water System Operations Optimization to Address Supply Uncertainty	Bill Fernandez Kirk Westphal Alek Cannan	AWRA Specialty Conference on Adaptive Management (CDM)	2009	text (pdf)	CA					Y					S																S		
121	City of San Diego Water Department Update of Long-term Water Demand Forecast	-	CDM	2008	text (pdf)	CA				Y								S		S										S		S		
	Assessing Climate Change Impacts on Water Supply Planning	Tim Cox	СДМ	2009	ppt (pdf)	US		Y Y	Y	Y								S												S	G	S		
123	Integrated Resources Planning: A Path to Sustainability	Dan Rodrigo	CDM	2008	ppt (pdf)	NA								G		G G	G	G		G		G	G		6		G	G			S	S		
124	Irvine Ranch Water District Water Supply Reliability Study	-	CDM	2008	text (pdf)	CA							S			S		S												S		S		
125	New York City Department of	-	СДМ	2007	text (pdf)	US																												Υ
126	Climate Change Impacts on Recharge in a Semi-Arid Irrigated Watershed	Gordon N. McCurry Kenneth M. Strzepek	CDM	2008	text (pdf)	US					Y		G			S			S															
127	Climate Change and the Water/Wastewater Industry: Challenges and Opportunities	Alexandra Doody Lynne Moss Gordon McCurry	CDM	2008	text (pdf)	US																												Y
128	The Role of Low-Impact	Mark Maimone	CDM, PWID	2007	ppt (pdf)	US																				S		S						
129	Green Infrastructure in CSO Long Term Control Planning	Marty Umberg Samantha Doering	MSD Greater Cincinnati CDM	2008	ppt (pdf)	US																				S		S						
130	Water Supply Reliability Planning in the Face of Uncertainty: A Case Study of the Irvine Ranch Water District		CDM	2008	ppt (pdf)	CA							S			S		S														S		
131	The City of West Palm Beach Wetlands-Based Water Reclamation and Water Supply Augmentation Program	Lee Wiseman, Larry Schwartz		2008	ppt (pdf)	US							s									S			S			S					S	
132	Cosumnes, American, Bear & Yuba River Integrated Water Management Plan	-	Cosumnes, American, Bear & Yuba River Watersheds Group (Ecosystem Sciences Foundation)		text (pdf)	CA					Υ			G		S															S		G	

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133 The	Future of Sustainability	W. M. Adams	International Union for the Conservation of	Jan-06	text (pdf)	NA																														
	ting to Climate Change in : An Australian Government	-	Nature (IUCN)  Commonwealth of  Australia Department of	2010	text (pdf)	NA																														
135 Manag	Position Paper Igrated Regional Water Igement Plan for the Upper Igrarita Watershed Planning Region	-	Climate Change  Rancho California Water  District  Riverside County  (CDM)	2007	text (pdf)	CA																											S			Υ
	gencies Integrated Regional er Management Plan and Strategic Plan	-	Solano County Water Agency Solano Agencies	2005	text (pdf)	CA																											S			
137 Climate	Change Risks to Australia's Coast	-	Commonwealth of Australia Department of Climate Change	Nov-09	text (pdf)	NA					Y			S		s																	S	S	S	
138 Impacts	Change in Australia: Regional and Adaptation - Managing he Risk for Australia	-	Australian Prima Minister's Science, Engineering and Innovation Council	2007	text (pdf)	NA																	G						G							
139 Climate C	hange Science Compendium		United Nations Environment Programme	Sep-09	text (pdf)	NA	Y	Y	Υ					S		S																			G	
	ing Climate Change: An Early of Water and Wastewater		CH2MHill; Association of Metropolitan Water		text (pdf)	US	Y			Υ	Y Y	S	5			S	S	S				S				S	S	S	S					G	G	
141 Climate	Adaptation Costs e Change Indicators in the United States		Agencies  US EPA	October-09 April-10	text (pdf)	US	Υ	Υ	Υ	Υ						G																				
142 Advanc	ting the Science of Climate Change		National Research Council of the National Academies	·	text (pdf)	US	Y	Y	Y	Υ	Υ	S	;	G S		S	G	S	G	G G	G					G									G	
143 Adaptin	g to the Impacts of Climate Change		National Research Council of the National Academies		text (pdf)	US	Y	Y		Υ	Y Y			S		S				G	S	S	G	S	G	S	S	S	S	S	S	S	S	S	S	
	Adaptation Priorities for the ern States: Scoping Report		Western Governer's Association	June-10	text (pdf)	US	Y		Υ																											
Water, Cl	limate Change, and Forests - ershed stewardship for a changing climate		US Forest Service	June-10	text (pdf)	us	Y	Υ		Υ	Y Y	G	i (	G S	G		G	S	G		s	s	S	s			G	G	s	s				G	S	
146 Water	g Sustainability of Projected r Demands in 2050 under nate Change Scenarios		Tetra Tech/NRDC	July-10	text (pdf)	us	Y	Υ		Υ	Y Y	G	i (	G	S		G	S	G	G G																
147 The Sta	ate Water Project Delivery		CA Department of Water Resources	August-10	text (pdf)	CA	Y				Y	G	i		G	S	G	S																G		
Rising 148 Strates	to the Urgent Challenge: gic Plan for Responding to lerating Climate Change		US Fish and Wildlife Service	September-10	text (pdf)	NA		Y	Y					G				G						G											G	Υ
1/10 Myt	hs of California Water - Har	nak, Lund, Dinar, Howitt, ount, Moyle, Thompson		Winter 2010	text (pdf)	CA	Y				Y							s																	G	
150 Sierra Cl	limate Change Toolkit - 3rd Edition	, mojie, monipson	Sierra Nevada Alliance	XX 2010	text (pdf)	CA	Y	Υ	Y	Υ	Y										S	S		S	G				S						S	Υ
151 Conserva for the S	nework for Cooperative tion and Climate Adaptation outhern Sierra Nevada and ehachapi Mountains		Southern Sierra Partnership	October-10	text (pdf)	CA				Υ	Υ			S				s			S			S											G	
Change	ng for the Effects of Climate - A Strategy for California		Pacific Council on International Policy`	November-10	text (pdf)	CA	Y							G		S		S			S	G	S	G		S		S	S		G	S			S	
153 Governo	te Action Team Report to or Schwarzenegger and the California Legislature		Cal EPA and the Climate Action Team	December-10	text (pdf)	CA																													G	Υ
Climate C 154 Analysis in	Change Characterization and n California Water Resources Planning Studies	Abdul Kahn and Andrew Schwarz	California Department of Water Resources	December-10	text (pdf)	CA					S S	G	i			G	G	G															G	G		
155 Adapta	ate of Marine and Coastal ation in North America: A hesis of Emerging Ideas		EcoAdapt	January-11	text (pdf)	NA	Y	Υ		Υ				S		S	S	S	S		S	S	G	S		S	G	S	S	S				G	S	Y

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ndex	source Title	Author(s)	Journal Title/Agencylies) Prepared for Institution(s)/ Agencylies) Prepared by)	Date	Occument Type	Geographic Scope General Introduction To	Climate Change and Water Resources	Global Climate Change Trends General Overview of CC	Processes	regional Contents 3CM Modeling and	Downscaling  1 ydrology Trends and Models	ilood Management	Groundwater	Journawater Habitats, Ecosystems and Biodiversity	4ydropower Generation	sea Level Rise	stormwater Management	Surface Water Supply	Water Quality	Jrban Water Demand	Agricultural Water Demand	Conservation	lood Management	Groundwater	and Biodiversity	1ydropower Generation	sea Level Rise	Reuse and Recycling	stormwater Management	Surface Water Supply	Nater Quality	Agricultural Water Demand	Jrban Water Demand	Decision Support Alternatives Evaluation	Analysis of Uncertainty	Adaptive Management	CC Mitigation
156	Managing Water in the West - Literature Synthesis on Climate Change Implications for Water and Environmental Resources (Second Edition)	Mark Spears, Levi Brekke, Alan Harrison, and Joe Lyons	BOR	January-11	text (pdf)	US	Y		,	Y	Y Y	G		G	G	G		G		G							0,		01	01							
157	West-Wide Climate Risk Assessments: Bias-Corrected and Spatially Downscaled Surface Water Projections		BOR	March-11	text (pdf)	US	Υ		١	Y	Y Y																							G	G		
158	ReadyOr Not? An Assessment of California Agricuture's Readiness for Climate Change		California Climate and Agricultural Network	March-11	text (pdf)	CA			١	Y								G				G								G		G					Υ
159	Climate Change Vulnerability Assessments: Four Case Studies of Water Utility Practices		US EPA	March-11	text (pdf)	CA	Y		١	Y	Y Y	S			S	S	S	S	S	S			G				G			G				G	S	G	
160	SECURE Water Act Section 9503(c) - Reclamation Climate Change and Water 2011		US Bureau of Reclamation	April-11	text (pdf)	NA	Υ		١	4	Y Y	S	S	s s	S		S	S	S	S	s														G		
163	Drops of Energy: Conserving Urban Water in California to Reduce Greenhouse Gas Emissions		UC Berkeley School of Law's Center for Law, Energy & the Environment (CLEE); UCLA School of Law's Environmental Law Center & Emmett Center on Climate Change and the Environment; Bank of America		text (pdf)	CA	Υ		,	Y						G		G				S								S			S				Y
162	Extreme Weather and Climate Change - Understanding the Link, Managing the Risk		Pew Center on Global Climate Change	June-11	text (pdf)	NA	Y	Y																												G	G
163	The Economic Costs of Sea-Level Rise to California Beach Communities		California Dept of Boating and Waterways		text (pdf)	CA	Y	Y Y	١	Y	Y	S				S							S				S									G	
164	community		World Business Council for Sustainable Development		text (pdf)	NA	Υ											G				S								S					G		Y
165	Adapting Urban Water Systems to Climate Change		ICLEI	xx 2011	text (pdf)	NA	Y		١	Y		G	G	3		G	S	S	G									S		S		S	S	G	G	S	Υ
166	America's Climate Choices		National Research Council of the National Academies		text (pdf)	US		Y Y																													
167	Informing an Effective Response to Climate Change		National Research Council of the National Academies		text (pdf)	US		Υ			Υ																							S	S	S	Υ

